PLANTAE AUSTRO-AMERICANAE, II

De investigationibus generis Herrania diversae observationes

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The following observations are presented as a result of revisionary studies in the sterculiaceous genus *Herrania.*

Herrania albiflora Goudot in Ann. Sci. Nat., sér. 3, 2 (1844) 230, t. 5, fig. 1-10; Triana et Planchon Prodr. Fl. Novo-Granat. 1 (1862) 209.

TYPE: *Goudot sine num.*: Colombia, Departamento de Boyacá, Muzo (Valle del Río Magdalena). Not seen.

GENERAL DISTRIBUTION: The central Magdalena Valley (south-eastern Bolívar, eastern Antioquia, western Santander, western Boyacá).

COMMON NAMES: *cacao de monte; cacao montarás; cacao montaraz; cacao simarrón.*

MEANING OF SPECIFIC NAME: The specific name refers to the whitish or yellow-cream colour of the flowers.

ORIGINAL DESCRIPTION: "La racine de cet arbrisseau produit plusieurs tiges cylindriques, droites, simples, ou très rarement bifurquées, qui atteignent environ 5 mètres de hauteur sur 11-14 centimètres de diamètre; le bois en est blanc, peu dur, et recouvert d'une écorce grise. Les feuilles, qui offrent une disposition analogue à celles du *Carica* ou des *Cecropia,* naissent toutes à ternes, digitées, à 5 ou 6 folioles lancéolées ou obovales, acuminées au sommet et atténuées à la base, munies de très courts pétiolules, entières, membraneuses, glabres, à nervures pubescentes et à poils étoilés; elles sont portées sur des pétioles cylindriques, renflés à la base, longs de 22 à 42 centimètres, couverts de poils férrugineux, ainsi que la partie de la tige qui les supporte; elles sont accompagnées de stipules linéaires, entières, caduques, férrugineuses, d'environ 5 centimètres de longueur. Les fleurs, globuleuses, blanches, naissent en paquets épars sur la

partie inférieure et moyenne des tiges; elles sont portées sur des pédicelles courts, cylindriques, tomenteux, accompagnées de très petites bractées linéaires. Le calice est profondément partagé en trois divisions à peu près égales, arrondies, concaves, tomenteuses extérieurement, glabres en dedans. Corolle blanche, formée de cinq pétales hypogynes, glabres, épais, concaves, voûtés, terminés par une lanière très étroite, aiguë, réfléchie, longue de 2 centimètres et au-delà. Etamines disposées en faisceaux, oposées aux pétales et adnées à la partie moyenne et externe d'une couronne campanulée 5 fide, à divisions ovales, aiguës, réfléchies, avec lesquelles les faisceaux sont soudés; ceux-ci alternent avec les divisions de la couronne et supportent 3 anthères, disposées de manière que deux sont superposées et la troisième latérale; celles-ci sont biloculaires, divergentes, s'ouvrent longitudinalement et renferment un pollen lisse; avant l'épanouissement de la corolle, elles se trouvent cachées dans la concavité des pétales. Le pistil se compose d'un style linéaire droit glabre, terminé par 5 stigmates dressés, oblongs, et d'un ovaire velu, sessile, ovale, à 5 angles, à 5 loges contenant chacune une seule rangée d'ovules anatropes, fixés à un placenta axile. Les fruits sont des capsules indéhiscentes, oblongues, hispides, de même nature que celles du Cacaotier cultivé, se trouvent parcourues par 10 côtes, et atteignent à la maturité de 11 à 14 centimètres de longueur. A cette époque, ils offrent une couleur jaune, sont uniloculaires par suite de l'avortement des cloisons, et renferment généralement 3, plus rarement 5 séries, composées chacune de 4 à 8 (en tout 30-40) graines irrégulieres, comprimées, anguleuses, envelopées d'une pulpe blanche, mucilagineuse, légèrement acide, et revêtues d'un tégument interne membraneux, ainsi que d'une pellicule interne, coriace, rugueuse en dehors. L'embryon, de couleur brune, présente deux cotylédons épais, inégaux, très rarement plissés, et une radicule très courte".

A small tree up to 5 meters tall, consisting of several cylindrical, simple or rarely branching trunks, 11-14 cms. in diameter, with a greyish bark. Leaves grouped at the apex of the trunk, digitate, stipulate, 5-6 foliate. Branches densely and minutely ferrugineous-tomentulous, probably becoming almost glabrous. Petioles terete, densely and minutely ferrugineous-villose, somewhat dilated at the base, as long as the leaves, conspicuously striate-sulcate, up to 45 cm. long, 4-6 mm. in diameter. Stipules conspicuous, linear, entire, acute, caducous, ferrugineous, 50 mm. long, 3-4 mm. wide. Leaflets lanceolate-

obovate, apically acuminate, basally long-attenuate-decurrent, very shortly petiolulate (petiolule strong, 3-4 mm. long), marginally entire, thin-chartaceous, 20-45 cm. long, 9-15 cm. wide, dark green and glabrous above, pale green and almost glabrous or with extremely remote and microscopic stellate-hairs beneath; the veins of both surfaces prominent, clothed with ferrugineous, minute and weak puberulence. Inflorescence fasciculate, few-flowered (5 or 6 flowers). Flowers subglobose, 15 mm. in diameter, borne in contracted racemes on the lower and middle part of the trunk, white, pedicellate. Pedicels very short, cylindric, fulvous-tomentulose, subtended at the base by a minute, very densely fulvous-tomentulose linear bract. Flower buds small, globose, tomentose. Calyx patelliform. Sepals three, subequal, connate half their length, rotund-ovate, marginally entire, yellowish-white, externally densely stellate-villose, internally glabrous, about 7 mm. long, 6 mm. wide. Petals five, very broadly rotund-ovate, cucullate, apically glabrous, thick-membranaceous, somewhat muricate-granulose on both surfaces, 5 mm. long, 4 mm. wide, longitudinally striate-veined, internally with conspicuous veins, ligulate, white. Ligules of the petals linear, reflexed, white, glabrous, membranaceous, with six or seven brownish nerves, up to 2 cm. (usually shorter) long, less than 1 mm. wide at the base. Stamen tube five-fid, alternately 2 and 3 antheriferous with short, simple, free filaments and bilocular, divergent, longitudinally dehiscent anthers. Staminodes petaloid, very broadly ovate, acute, reflexed, 6 mm. long, 5 mm. wide, densely muricate-granulose on both sides, marginally entire. Pistil short, more or less 1.5 mm. long. Style linear, erect, glabrous with a five-parted stigma. Ovary sessile, subglobose, pilose, 1.3 x 1 mm. Fruits capsular, oblong, apically short-acuminate, the tip somewhat rounded, hispid, 10-costate, yellow when ripe, 11-14 cm. long. Seeds 30-40, irregular, compressed, enveloped in a white, mucilaginous pulp, slightly acid, covered with an internal membranous tegument and an internal pellicle, coriaceous and exteriorly rugous. Embryo brown, with two thick, unequal, rarely folded cotyledons and a very short radicle.

Specimens examined:

Colombia:

H. M. Curran 135, April-May 1916 "Department of Bolivar, Norosi-Tiquisio trail, Lands of Loba, altitude 150-600 meters. *Cacao de monte.* 3 m. high. Edible". (U. S. Nat. Herb.; Field Mus. 537287); *Goudot sine num.,* 1844, Photograph of the type (Herb. Field Mus. 982287; Econ.

Herb. Oakes Ames); *O. Haught 1490,* Jan. 3, 1935 "Departamento Sur de Santander, vicinity of Barranca Bermeja, Magdalena Valley, between Sogamoso and Colorado Rivers; alt. 100-150 meters. Camp Mesa. A small, sparingly branched, cauliferous tree bearing huge, palmate, long-petiolate leaves. *Cacao de monte.* Not rare, specially in rich soil south of Sogamoso River". (U.S. Nat. Herb. 1592073; — *O. Haught 1598,* March 25, 1935 "Department Sur de Santander, vicinity of Puerto Berrío, between Carare and Magdalena Rivers; alt. 100-700 m. Small cauliferous tree; fls. white". (Herb. Field Mus. 929632; U. S. Nat. Herb. 1592091; Herb. Nac. Colomb.); *F. W. Pennell 3832,* Jan, 14, 1918, "Department of Antioquia, opposite Boca Carare; forest along river. Alt. 125 m. Tree. Fl. yellowish-white". (Herb. N. Y. Bot. Gard.; U. S. Nat. Herb. 1044897).

Herrania albiflora is rather closely allied to *H. purpurea* from which it can be inmediately distinguished by its white or cream-coloured flowers. There are other differences of importance: the sepals of *Herrania albiflora* are usually much smaller than those of *H. purpurea;* the stipules of the former are longer than those of the latter species; the leaflets of *H. albiflora* are lanceolate-obovate, whereas those of *H. purpurea* tend to be obovate-oblong; and the petals of the former species are very broadly rotund-ovate, 5 x 4 mm., while those of the latter are obovate, 8 x 4 mm.

The habit and general floral structure of *Herrania albiflora* and *H. purpurea* are strikingly similar. These two species alone in the genus have a patelliform calyx which gives the flower a completely different appearance than the cymbiform or subcymbiform calyx which is usual in the genus. The ligules in both species are likewise similar in structure, and are both under 20 mm. in length.

Herrania albiflora bears no close relationship to any other species of the genus.

The collection *Haught 1490* has much larger leaves and flowers than is usual for *Herrania albiflora.* The flowers, which have the peculiar patelliform structure typical of this species, are two and one half times as large as those of all other specimens which I have seen. It might possibly represent a distinct *forma,* but additional collections must be made before the full range of size variation in this species can definitely be understood.

Herrania atrorubens Huber in Bull. Soc. Bot. Genève, sér. 2, 6 (1914) 187.

"....differt a *H. Mariae* Goud. statura humili floribusque atrorubentibus. Petit arbrisseau, Nº 7935. Castanhaes de Río Cuminamirim, Alto Amazonas". (Brazil).

I have been unable to examine the type of this concept. Without typical material, I have found it impossible to estimate its validity as a species, but it would seem that the colour character alone would hardly suffice for the creation of a new specific concept.

Herrania Cuatrecasana García-Barriga in Caldasia 2 (1941) 57, t. 2 (p. 58).

TYPE: *J. Cuatrecasas 11168,* Dic. 18-19, 1940: Colombia, Comisaría del Putumayo, Río Guamués.

GENERAL DISTRIBUTION: The Comisaría del Putumayo, Colombia.

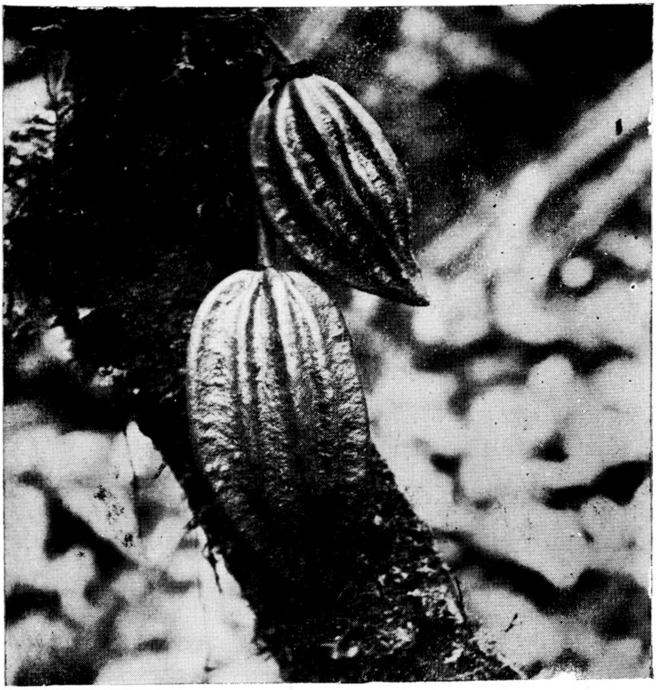
COMMON NAME: *cacao de monte.*

INGA INDIAN NAME: *sácha-cacáo.*

KOFÁN INDIAN NAME: *ko- kee-ot'-chu.*

MEANING OF THE SPECIFIC NAME: This concept was named in honour of Dr. José Cuatrecasas, of the Escuela Superior de Agricultura Tropical, Cali, Colombia.

A small tree three meters tall with whitish, maculate bark. Petioles terete, densely brown stellate-tomentose. Leaves digitate, large, long-petiolate, seven-foliolate. Leaflets sessile, spreading, oblanceolate-oblong, the margins very remotely and obscurely denticulate basally long and gradually attenuate-decurrent, apically acutely acuminate, the lateral about 33 cm. long, 9 cm. wide, the central 50 cm. long, 17 cm. wide; the leaf surface papyraceous, above sparsely and minutely stellate-pubescent, the veins brown tomentose, beneath softly stellate-pilose, the veins more prominent and hirsute above than beneath. Inflorescence fasciculate 80-90 flowered. Flowers caulinary, growing from the upper portions of the trunk, pedicellate. Pedicels slender, articulate, stellulate-tomentulose, 2-3 cm. long, basally subtended by a linear or filiform pilose, caducous bract. Buds ellipsoid or globose, 8-9 mm. in diameter. Sepals three, equal, oblong, apically obtuse, dark purplish red, outwardly stellate-pilose with long hairs, inwardly with very short reddish hairs, 15-18 mm. long, 7-11 mm. wide. Petals concave, rotund-ovate, apically strongly cucullate, glabrous, muricate-granulose, longitudinally striate-nerved, 10-11 mm. long, 7-8 mm. wide, with a long filiform ligule,



Herrania Cuatrecasana García-Barriga. Fruit.
Photograph of *Schultes 3342,* Puerto Limón, Putumayo, Colombia.
(Photo Schultes).

130 mm. long, 1.5 mm. wide. Staminal tube five-parted with the stamens all bearing four anthers. Staminodes petaloid, purple rhomboid-lanceolate, attenuate towards the apex, apically rather obtuse or acute, 2.5 cm. long, 0.8 cm. wide. Ovary shortly depressed ovoid, densely pilose with whitish-yellow hairs, 2 mm. long. Stigmas three. Fruit ellipsoid, apically attenuate-acuminate, ten-costate, with five primary and five secondary cultriform ribs, covered, especially along the ribs with very minute stinging, stellate hairs, rind very thin and brittle, yellow when ripe. Seeds about 60, regular, compressed, triangular in outline, 14 mm. long, 12 mm. wide, 5 mm. thick, enveloped in a white, mucilaginous pulp, covered with a coriaceous tegument, exteriorly rugous.

Specimens examined:

Colombia:

J. Cuatrecasas 11168, Diciembre 18-19, 1940 "Comisaría del Putumayo, márgenes del río Guamués, San Antonio del Guamués, 310 mtrs.

alt." (Type in Herb. Nac. Colomb.; Duplicate Types in U. S. Nat. Herb.; Econ. Herb. Oakes Ames); — *R. E. Schultes 3342,* 27-28 Febrero 1942 "Comisaría del Putumayo, alta cuenca del río Uchupayaco, al suroeste de Pto. Limón, alt. 300 m. Nombre ingano: *sácha-cacáo;* nombre castellano: *cacao de monte*". (Herb. Nac. Colomb.; Econ. Herb. Oakes Ames); — *R. E. Schultes 3585,* 2-5 Abril 1942 "Comisaría del Putumayo, río San Miguel o Sucumbíos, Conejo y los alrededores, en frente de la Quebrada Conejo, alt. 300 m. Nombre kofán: *ko-kee-ot'-chu*". (Herb. Nac. Colomb.; Econ. Herb. Oakes Ames; Herb. Gray).

Herrania Cuatrecasana appears to be most closely related to *H. Mariae*. This relationship could be suspected (and was discussed in Caldasia 2 (1941) 59 from a study of the vegetative and floral portions of *Herrania Cuatrecasana*) but it is established without question by the recent discovery of the fruiting portions of this species. When more representative material of both *Herrania Cuatrecasana* and *H. Mariae* is available, we may find that the former should be treated as a variety of the latter. *Herrania Cuatrecasana* differs from *H. Mariae* chiefly in having leaflets which are very much more long attenuate-decurrent at the base, in the indument and size of the leaflets, in the length of the pedicels, in having very characteristic and conspicuous rhomboid-lanceolate staminodes, and in the length of the petals. It is much more softly and densely pubescent than *H. Mariae*. It is also a very much smaller plant that *H. Mariae*. *Herrania Cuatrecasana* is distantly allied to *H. nycterodendron*. Vegetatively, these two species appear to be very closely related, but a comparison of the fruits reveals that they are rather distinct.

The description of the fruit of *Herrania Cuatrecasana* is based upon the collection *Schultes 3342* from the Putumayo. The leaves and dried remains of floral parts adhering to the ripening fruits as well as floral parts which were collected on the ground at the base of tree have enabled me to determine the specimens as representing *Herrania Cuatrecasana*.

Herrania guianensis Sagot ex Schumann in Martius Fl. Brasil., 12, pt. 3 (1886) 75, *nomen nudum in synon.*

"*Herrania guyanensis* Sagot" in Correa Dicc. Pl. Uteis Brasil 1 (1926) 367.

This name refers to a species of *Theobroma*. Schumann, who examined the type specimen, placed the name in synonymy under *Theobroma speciosum* Sprengel.

Theobroma Mariae (Martius) K. Schumann forma **minor** Diels in Notizbl. 15 (1940) 48.

"Omnibus partibus reducta. Arbuscula (ex coll.) 1 m. alta. Sepala 12-14 mm. longa, 8-10 mm. lata viridia. Petala "pallide carnea" (ex coll.) pars basalis ("cucullus") 7-8 mm. longa, 6 mm. lata, appendix ("ligula") pallide lutea (ex coll.) 75-80 mm. longa. Staminodia lanceolata 15 mm. longa, 3-4 mm. lata, filamenta libera, 1.5 mm. longa.

"Ost-Ecuador: Pastaza: oberhalb Mera, primärer Bergwald, lichte Stelle, 1200 m. ü. M. "Cacao de monte". Blühend 23 Nov. 1938 (Hertha Schultze-Rhonhof n. 3032).

"Auch das beigelegte Blatt is viel kleiner. Doch ausser dem Grössenunterscheid scheint die Pflanze nicht abzuweichen von typischer *Th. Mariae,* die in derselben Gegend vorkommt. (z. B. H. Schultze-Rhonhof n. 2999".

I have been unable to examine herbarium material or photographs of this form, and, until an opportunity to do so presents itself, I shall be unable to treat it critically. In most of the characters ennumerated in the original description, it would seem that *Herrania Mariae* forma *minor* approaches *H. nitida* var. *sphenophylla,* although, of course, no mention is made of the fundamentally important character of leaf-pilosity.

Theobroma montana Goudot ex Bernoulli in Neue Denkschr. allg. Schweiz. Gesell. gesam. Naturw., 24, nº 3 (1871) 15, *nomen nudum.*

Under the caption: "species mihi ignotae", Bernoulli published this name without a description and without the citation of specimens. It may represent a species of *Herrania,* for Bernoulli commented: "Vero similiter *Herraniae* species".

Herrania nitida (Poeppig) R. E. Schultes in Caldasia 6 (1943) 16.

The following recently collected specimens of *Herrania nitida* contribute to our knowledge of the range of this widely distributed species.

Colombia: *C. Grassl 10121,* Nov. 7, 1943. "Intendencia del Amazonas, near mouth of Rio Loretoyacu. Flowers red; ligules light scarlet. Trunk basally 2-3 inches in diameter. Treelet up to 10 feet." (Herb. Nac. Col.); — *R. E. Schultes 5351,* April 1-7, 1943. "Comisaría del Vaupés, Upper Apaporis Basin, path between Rio Itilla (Puerto Trinidad) and Rio Macaya (Corinto), 350 m. alt. Sandy and laterite gravel terrain, well-drained. Treelet 12 ft. tall, basal diameter 2 inches. Bark slightly rough, black with greyish spots. Fascicles many-flowered. Leaves glabrous". (Econ. Herb. Oakes Ames; Herb. Nac. Col.); — *R. E. Schultes 5359,* April 10-17, 1943. "Comisaría del Vaupés, Río Vaupés, Puerto Nare, on path inland near Río Tacunema. Karijona Indian name: *curata.* Clay soil, wet and poorly drained. Treelet 12-14 ft. tall. Basal diameter 2 inches. Bark smooth, brown with black spots. Flowers scarlet. Sepals lighter with whitish spots. Rind of fruit extremely thin. Leaves glabrous". (Econ. Herb. Oakes Ames; Herb. Nac. Col.);

R. E. Schultes 5491, June 1943. "Comisaría del Vaupés, Upper Apaporis Basin, Río Macaya, near the Cachivera del Diablo. Alt. 350 m. Forest. Sandy soil. Treelet 12 ft. tall. Sterile". (Herb. Nac. Col.). — *R. E. Schultes 5529,* May 1943. "Comisaría del Vaupés, Upper Apaporis, near confluence of Rios Ajaju and Macaya (Puerto Hevea), 350 m. alt. Sandy, well-drained soil. Treelet 12 ft. tall; basal diameter 3 inches; bark smooth, black thin. In dense forest shade. Fruit on lower portion of trunk, ellipsoid, 10-ribbed, long-tipped; rich green, stinging hairs up to 1 m. long along ribs and between them. Persistent sepals densely hirsute. Fruit 9-10 x 5 cm. Common name: *cacao de monte*". (Econ. Herb. Oakes Ames; Herb. Nac. Col.); *R. E. Schultes 5686,* Oct. 1, 1943; "Comisaría del Vaupés, Middle Apaporis Basin, Río Cananarí, Buenos Aires, c. 250 m. alt. In abandoned cultivation. Treelet 10 ft. tall; common name *cacao caimán*". (Herb. Nac. Col.).

Herrania purpurea (Pittier) R. E. Schultes, comb. nov.

Theobroma purpureum Pittier in Fedde Rep. Sp. 13 (1914), 319; Standley in Contrib. U. S. Nat. Herb. 27 (1928) 262, t. 51; Standley in Field Mus. Nat. Hist. Bot. Ser. Publ. 392, 18 (1937) 688-689.

TYPE: *Pittier 2574,* January 26, 1911; Panama Canal Zone, El Paraíso. Not seen.

GENERAL DISTRIBUTION: Costa Rica and Panama.

BRIBRÍ INDIAN NAME: *uis-ub.*

COMMON NAMES: *cacao cimarrón; cacao de ardilla; cacao de mico; cacao maní; chocolatillo; cacao de monte.*

MEANING OF SPECIFIC NAME: The specific epithet refers to the colour of the floral parts.

ORIGINAL DESCRIPTION:

"Arbuscula eramulosa, foliis stipulatis, 5 — digitatis, trunci apicem congregatis; stipulis linearibus, acutis, atropurpureis, plus minusve

stellato-villosis, valde caducis; petiolo longo crasso, sulcato plus minusve ferrugineo-villoso; petiolulis brevibus crassis; foliolis petiolo subaequilongis obovato-oblongis, basi cuneatis, apice late obtuse acuminatis, venis supra et subtus stellato-villosis demum glabris, margine obscure sinuatis; inflorescentia cauliflora, floribus 5-8 glomeratis; bracteis bracteolisque parvis angustis, naviculiformibus, extus villosis, intus glabris; pedunculis solitariis teretis villosis; calyce globoso, extus ferrugineo stellato-villoso, intus purpureo-incarnato glabro, irregulariter 3-(raro) 4-partito rumpens, laciniis ovatis vel oblongis; cucullo obovato breve unguiculato 5-costato, costulis papillosis; ligula anguste lanceolata, basi emarginata, apice acuta, pendula; tubo stamineo brevi; staminodiis ovatis acutis reflectis; staminibus geminis alterne 1-2-antheriferis; ovario ovoideo 10-sulcato villoso; stilo glabro apice 5-fido; bacca ovoideo-elliptica, 10-costata, stellato hispida.

"Arbuscula usque ad 3 m. alta, cortice glabro griseo obtecta; novellis dense flavescente-villosis. Stipulae 3-4 cm. longae, 2.5 mm. latae. Petiolus 30-42 cm. longus, basi incrassatus; petioluli 0.5 cm. longi. Calycis laciniae ca. 12 mm. longae. Petala 18-19 mm. longa; cucullus circiter 5.5 mm. longus, extus pallide purpureus, costulis intus atropurpureis; ligula atro-purpurea 15.5 mm. longa 1.8 mm. lata. Tubus stamineus 3 mm. longus cum staminodiis 9 mm. longis 8 mm. lata purpureus; thecas antherarum circiter 1.5 mm. longae longitudinaliter dehiscentes, flavae. Ovarium 2.5 mm. longum, 1.3 mm. diametro; stilus 2 mm. longus. Bacca 9 cm. longa, 4 cm. diametro; matura flava; semina ca. 25, obtuse rhomboidea depressa, circa 1 cm. longa, 1.3 cm. lata, 0.6 cm. crassa".

Small tree up to 3 meters in height, without branches along the trunk except at the apex, with grey bark becoming glabrous, densely yellow-villose when young. Leaves digitate, five-foliolate, stipulate (stipules linear, acute, dark purple, more or less stellate-villose, caducous, up to 5 cm. long, 3 mm. wide.) petioles terete, obscurely sulcate, somewhat ferrugineous villose, strong, basally somewhat swollen, 30-45 cm. long. Petiolule strong, very short, up to 5 mm. long. Leaflets obovate-oblong, basally cuneate, apically broadly and obtusely acuminate, marginally entire or very obscurely sinuate, unequal, thin-chartaceous, glabrous above, sparsely and minutely stellate-villose beneath, (the nerves densely stellate-villose on both surfaces), almost as long as the petioles, 22-35 cm. long, 6-13 cm. wide. Inflorescence

fasciculate, 5-8-flowered. Flowers cauliflorous, in contracted racemes on the lower and middle portions of the truk, dark purple, pedicelate. Pedicels terete, articulate, brown-tomentose, more or less 4 mm. long, basally subtended by a short, linear, naviculiform bract which is densely brown-tomentose externally, glabrous internally. Flower bud globose, 7-9 mm. in diameter, villose. Calyx petalliform. Sepals three (rarely four), united for half of their length, broadly ovate or (rarely) elliptic-ovate, apically obtuse, marginally entire, 12 mm. long, 9 mm. wide, brownish-purple, glabrous within, ferrugineous, densely stellate-villose without. Petals five, sessile, obovate, strongly concave, apically very strongly cucullate, up to 8 (frequently less) mm. long, 4 mm. wide, muricate-papillose on both sides but denser externally (specially along the nerves), pale purple without, veins deep purple within, longitudinally striate-nerved, five-nerved, ligulate. Ligules of the petals linear, narrowly lanceolate, basally emarginate, apically acute, pendulous, dark purple, about 15 mm. long, 1.8-2 mm. wide. Stamen tube 5-fid, short, 3 mm. long; stamens bearing alternately one and two anthers; filaments simple, short, free; anthers about 1.5 mm. long, longitudinally dehiscent, yellow. Staminodes petaloid not conspicuous, ovate, acute, reflexed, densely muricate-granulose, red-purple, 9 mm. long, 8 mm. wide. Ovary ovoid, 10-sulcate, villose, 2.5 mm. long, 1.3 mm. in diameter. Style glabrous, 5-fid. Fruit baccate, ovoid-elliptic, 10-costate, stellate-hispid with stinging hairs, yellow, 7 cm. long. Seeds about 25, obtusely rhomboid, depressed, 1 cm. long, 1.3 cm. wide, 6 mm. thick.

Specimens examined:

Panamá:

P. H. Allen 282, March 17, 1937 "Provincia del Darien, Trail between Pinogana and Yavisa, ca. 15 m., Tree 10 m.; "coco de monte" (Herb. Gray); — *W. N. Bangham 549,* Sept. 3, 1929 "Canal Zone. Barro Colorado Island. Armour House to second bay north; yellow-orange fruit" (Herb. Field Mus. 710929); — *G. P. Cooper & G. M. Slater 283,* July-Aug. 1927 "Chiriquí, Progreso. Very small tree, 15 feet tall. "Cacao mani" (Herb. Field Mus. 573031) (Sterile); — *V. C. Dunlap 448,* 1924 "Province of Bocas del Toro, Changuinola Valley. Rather common; small slender tree; cauliflorous, Fruit resembles a small cacao pod. Common in abandoned land" (Herb. Field Mus. 709734); — *S. Hayes 398,* March 7, 1860 "Panama. Monte Lirio. Small tree 10-12 ft. high. fruit" (Herb. Field Mus. 710929); — *G. P. Cooper & G. M. Slater 283,* (Sterile); — *H. Pittier 2675,* 1911 "Canal Zone, Valley of Masambí, on the road to Las Cascadas Plantation; altitude 20-100 meters" (Herb. Field Mus. 709487); — *O. Shattuck 198,* Oct. 19, 1931 "Canal Zone. Barro Colorado Island. Laboratory clearing" (Herb. Field Mus. 704062); — *R. H. Wetmore & E. C. Abbe 73,* Dec. 26, 1931 "Canal Zone. Barro Colorado Island, Near end of Fairchild Trail. Small tree, 20-25 fet., flowers on old wood" (Herb. Gray; Herb. Field Mus. 650475).

Costa Rica:

M. Valerio 461, Feb. 25, 1933 "Playa Blanca, Golfo Dulce" (Herb. Field Mus. 676260).

Herrania purpurea is most closely related to *H. albiflora.* This relationship is discussed under *Herrania albiflora.*

I have included this Central American species (*H. purpurea*) in the present paper because it is the only species of the genus which occurs outside of South America and because it is related to a species of the northern regions of Colombia.